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ABSTRACT BOOK

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Uncommon reef coral association from the Eifelian (Mid. Devonian) of S Belgium: a palaeobiogeographic puzzle

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The Lower Middle Devonian of Belgium – long known as ‘Couvinian’ – displays a large range of buildups type from stromatoporoid biostromes and coral beds to wide bioherms with microbial core and stromatoporoid-coral framework. Such a bioherm occurs in the Wancennes locality, E of Couvin. Despite poor outcrop conditions (discontinuous sections, spot outcrops and blocs emerging in furrows of ploughed fields), the Wancennes Formation was recently described as a complex reefal structure starting on crinoidal rudstone stabilised by lamellar stromatoporoids and evolving upwards into a tabulate corals-stromatoporoid framestone rich in solitary and colonial rugose corals. The reef core displays fine-grained facies with abundant cement-filled cavities containing abundant brachiopods. The reef-crest is dominated by bulbous stromatoporoids and *Heliolites* accumulation within crinoidal rudstone.

The rugose coral diversity evolves upwards in parallel with the diversification of facies – and thus diversification of niches. A first assemblage is dominated by fasciculate to subcerioid ‘*Battersbyia varia**’, *Spongophyllum* sp., *Lyriellasma* sp., *Sociophyllum* spp., *Stringophyllum* spp. and various *Mesophyllum* and *Cystiphyllodes* species. Massive colonies of *Alveolites* spp. and *Heliolites porosus* are also abundant in the stromatoporoid facies. Colonies of *Australophyllum* sp. occur sporadically. In the fine-grained facies, solitary cystimorphic corals dominate with *Acanthophyllum* spp., *Dohmophyllum* spp., *Thamnophyllum* spp., ‘*Battersbyia**’ sp., chaetetids and thamnoporid tabulates. The upper rudstone facies suggests hydronymic settings yields the most diverse assemblage with *Spongophyllum sedgwicki*, ‘*Battersbyia varia**’ (both fasciculate and cerioid colonies), colonial and gregarious *Mesophyllum* spp., numerous large solitary rugose, yet undescribed species of *Xystriphyllum*, *Cyathophyllum*, *Neomphyma*, *Lyriellasma* and *Taimyrophyllum*.

The top of the reef is affected by a subaerial erosion surface interpreted as a major sequence boundary overlaid by the siliciclastic deposits of the Jemelle Formation (Chavées Member). The later yields a poorly diverse fauna of solitary rugose corals (cystimorphic, *Acanthophyllum*) and rare *Thamnophyllum* sp.

The facies assemblage of the Wancennes reef exemplifies perfectly what is expected to find in a Middle Devonian bioherm. Its limited lateral extension (c. 300 m high, 3 km-long) is most probably due to syn-sedimentary block-faulting due to the tectonic structuration of the basin at this time. The faunal assemblage is comparable to other Eifelian reefs in similar context in Germany and Russia. However, most surprising is the joined occurrence of coral taxa characteristic of other palaeobiogeographic provinces. Among them, *Australophyllum* and *Taimyrophyllum* that are described from N Canada, E Australia and central Asia but noticed in W Europe for the first time. *Lyriellasma* and *Neomphyma* have been described sporadically in the Eifelian of Belgium and Germany but are more typical of Australian and Canadian assemblages. Hence, the palaeobiogeography signal is important as it seems now that very most Middle Devonian genera are cosmopolitan, with less and less exceptions. Dispersal of corals have also consequences for palaeogeography, palaeoclimatology and sea level fluctuations.

*the name ‘*Battersbyia varia*’ is provisionally used to designate the fasciculate to (sub)-cerioid colonies that were also described as *Fasciculum varium*, *Beugniesastraea varia* and *Xystriphyllum implicatum* by various researchers. This taxon is currently under revision, based on type material, topotypes and numerous colonies from S Belgium.